

an AGC for controlling gains of the baseband signals for each of the two channels output from the down mixer according to the gain control level detected by the detector;

a differentiator for differentiating the baseband signals of the two channels output from the filter;

a multiplier for cross multiplying the baseband signals of the two channels output from the differentiator and the baseband signals of the two channels output from the filter; and

an adder for adding the baseband signals of the two channels output by the multiplier and thereby detecting data.

**Please add the following new claim:**

3. An RF reception system for radio communication comprising:

an RF receiver for receiving an RF signal;

a down mixer for mixing the received RF signal and carrier signals, and thereby converting the received RF signal into baseband signals of channels I and Q;

a filter for filtering high-frequency components of the baseband signals of the two channels output from the down mixer;

a detector for detecting a gain control level corresponding to the difference obtained by comparing levels of the baseband signals of the two channels output by the filter with a predetermined level;

an AGC for controlling gains of the baseband signals for each of the two channels output from the down mixer according to the gain control level detected by the detector;

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a differentiator for differentiating the baseband signals of the two channels output from the filter;

a multiplier for cross multiplying the baseband signals of the two channels output from the differentiator and the baseband signals of the two channels output from the filter; and

an adder for adding the baseband signals of the two channels output by the multiplier and thereby detecting data.

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